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It is interesting to find that the lithium lines λ4602 and λ4132 show polarized components in the longitudinal effect. The longitudinal effects in hydrogen and helium, the only ones investigated up to this time, had given unpolarized components.

Previously, only the diffuse series of elements had shown large electric effects which makes the calcium results most unexpected. H and K belong to a principle pair series and the lines of the diffuse series at λλ4457, 4435, and 4425 show no effect at all, under low dispersion.

A full account of this investigation will be published shortly in the *Astrophysical Journal.*

[1] J. Stark, *Ann. Physik*, **43**, 965 (1914); J. Stark and G. Wendt, *Ibid.*, **43**, 983 (1914) J. Stark and H. Kirschbaum, *Ibid.*, **43**, 991 and 1017 (1914); J. Stark, *Ibid*, **48**, 193 (1915).

[2] A. Lo Surdo, *Roma, Rend. Acc. Linci*, **23**, 1st. sem., 82, 143, 252, 326 (1914).

A PROOF OF WHITE'S PORISM

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Received by the Academy, August 8, 1916

The interesting theorem of Professor White[1] to the effect that *if two cubic curves in space admit a configuration* Δ_7—i.e., *seven points of the one and seven planes of the other such that each of the points is on three of the planes and each of the planes is on three of the points—then they admit* ∞^1 *such configurations* furnishes perhaps the only important generalization of the Poncelet polygons.[2] Analytically expressed the theorem states that if for a (3, 3) form $F(\lambda,\mu)$ there exists a set of seven parameters λ and seven parameters μ such that $F = 0$ for each λ together with three μ's and for each μ together with three λ's, then there exists ∞^1 such sets Δ_7.

The published proof of this theorem fails owing to an error of enumeration.[3] This error, originally overlooked by Professor White and myself, was noted subsequently by him. That however the theorem itself is true can be shown as follows.

Let $G(\lambda_1, \lambda_2) = 0$ be the condition that distinct values λ_1, λ_2 determine in $F(\lambda, \mu) = 0$ the same value of μ. Then G is a symmetrical (6, 6) form. If $F(\lambda, \mu)$ has a Δ_7, the seven λ's constitute an involutorial set of G, i.e., a set such that any two of the λ's satisfy $G = 0$. Conversely if G has an involutorial set, then $F(\lambda, \mu)$ has a Δ_7. For if λ_1 and any one of $\lambda_2, \ldots, \lambda_7$ satisfy $G = 0$ then, since λ_1 can determine in $F = 0$ at most three μ's, λ_1 must be associated with three pairs of the remaining λ's in such a way that each pair determines with λ_1 a common value μ.

Thus at most seven μ's can be determined by the seven λ's. If however G has one involutorial set, it has ∞^1 such sets.[4] If therefore F admits one Δ_7, it must admit ∞^1 Δ_7's.

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[1] A variable system of sevens on two twisted cubic curves, these PROCEEDINGS, **2,** 337 (1916).

[2] In the sense that other analogous porisms can be based on the properties of an algebraic (2, 2) form.

[3] The number of poristic forms of the special type which factor into three bilinear forms was estimated at ∞^3 instead of ∞^5.

[4] Coble, Symmetric binary forms and involutions, *Amer. J. Math.*, **31,** 189.

A CONTRIBUTION TO THE PETROGRAPHY OF THE PHILIPPINE ISLANDS

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A very large part of the volcanic rocks of the Philippine Islands occur as tuff-breccias with flows and dikes of massive lava, and a very great area of country is covered with vegetation, so that it will be many years before anything like a thorough knowledge of the igneous rocks of the region will be acquired. Fragmentary contributions to the petrography of the islands are the most that may be expected for some time. Already it is known that the principal volcanic rocks are andesites with much fewer basalts and dacites, and almost no rhyolites. A short visit to Luzon in 1910 enabled one of us to study the collections in the Mining Department of the Bureau of Science [Iddings, J. P., *Philippine J. Sci.*, **5**, 155, 1910,] and to collect specimens from some of the more accessible localities on the island. From these specimens the accompanying chemical analyses have been made by Dr. Morley.

The first three analyses are from basaltic lavas having andesitic characters. The rocks are porphyritic with andesitic habit to the groundmass and a variable amount of modal olivine, which is present in the rocks from Antipolo and Taal, but does not appear in the specimen from Mayon which was analyzed, though it occurs in other lava from the same volcano. The normative plagioclase in each case is labradorite.

The basalt from Antipolo, anal. 1, is massive lava from near the waterfall. It is magnophyric and seriate porphyritic with phenocrysts of labradorite and smaller ones of olivine. The groundmass consists of prismoid and anhedral feldspar, anhedral pyroxene and euhedral